

What is claimed is:

1. A method of sending feedback information in a fast automatic repeat request for frequency division duplex or time division duplex communication that form an overall wireless communication system having uplink traffic and downlink traffic transmitted in a plurality of slots forming a frame, comprising the steps of:

receiving packets at a receiver, where the received packets are then de-interleaved, de-ratematched, decoded and monitored for error detection; and

acknowledging the received packets by transmitting feedback data to the sender of the packets, said acknowledgement comprising the reservation of a plurality of slots in the uplink or downlink dedicated physical channel radio frame for the feedback data.

2. A method according to claim 1, where there are  $N$  slots per frame and wherein the feedback data is transmitted in slots  $N_1$  to  $N_2-1$  and the data in the uplink or downlink direction are transmitted in slots 1 to  $N_1-1$  and in slots  $N_2$  to  $N$ , where  $N_1 > 1$  and  $N_2 > N_1 + 1$ .

3. A method according to claim 2, wherein the value of  $N_1$  is based upon the time offset between uplink and downlink channels as well as based upon the time required for de-interleaving, de-ratematching, decoding and cyclical redundancy checking.

4. A method according to claim 3, wherein the number of slots reserved for feedback data,  $(N_{fb} = N_2 - N_1)$  is a function of the size of the feedback packet.

1           5.       A method according to claim 1, wherein the value of  $N_1$  is based  
2 upon the time offset between uplink and downlink channels as well as based  
3 upon the time required for de-interleaving, de-ratematching, decoding and  
4 cyclical redundancy checking.

1           6.       A method according to claim 5, wherein the number of slots  
2 reserved for feedback data, ( $N_{fb} = N_2 - N_1$ ) is a function of the size of the  
3 feedback packet.

1           7.       A method according to claim 1, wherein the plurality of slots in  
2 the uplink or downlink dedicated physical channel radio frame for the feedback  
3 data is used for the feedback data only. ✓

1           8.       A method of sending feedback information in a fast automatic  
2 repeat request for frequency division duplex or time division duplex  
3 communication that form an overall wireless communication system having  
4 uplink traffic and downlink traffic, transmitted in a plurality of slots forming a  
5 frame, comprising the steps of:

6                   receiving packets at a receiver, where the received packets are  
7 then de-interleaved, de-ratematched, decoded and monitored for  
8 error detection; and

9                   using less than all of the dedicated physical control channel  
10 (DPCCH) bits in at least some of the slots for transmitting the  
11 feedback data to the sender.

1           9.       A method according to claim 8, wherein if more than a few  
2 feedback bits are required, than the spreading factor (SF) of the DPCCH is  
3 reduced, thereby creating more bits per time slot for use at least in part as  
4 feedback bits.

1           10. A method according to claim 8, wherein the feedback data to be  
2 transmitted to the sender is punctured into bits of the pilot, feedback (FBI) or  
3 transmit power control (TPC) fields in at least one time slot.

1           11. A method according to claim 8, wherein the feedback data to be  
2 transmitted to the sender is punctured into bits of the transport format  
3 combination indicator (TFCI) field if the number of transport format  
4 combinations needed during the connection leaves part or whole of the TFCI  
5 field unused.

1           12. A method of sending feedback information in a fast automatic  
2 repeat request for frequency division duplex or time division duplex  
3 communication that form an overall wireless communication system having  
4 uplink traffic and downlink traffic transmitted in a plurality of slots forming a  
5 frame, comprising the steps of:

6                   receiving packets at a receiver, where the received packets are  
7 then de-interleaved, de-ratematched, decoded and monitored for  
8 error detection; and

9                   acknowledging the received packets by transmitting feedback  
10 data in a feedback channel to the sender of the packets, wherein  
11 the feedback channel is generated in the same manner as a  
12 channel is generated for compressed mode.

1           13. A method according to claim 12, wherein the feedback channel  
2 is generated by puncturing into fields.

1           14. A method according to claim 13, wherein the fields are control  
2 fields.

1                   15.    A method according to claim 14, wherein the fields are control  
2                   fields and/or data fields.

1                   16.    A method according to claim 13, wherein the feedback data can  
2                   be delayed and therefore presented in a later frame.

1                   17.    A method according to claim 12, wherein the feedback channel  
2                   can be generated by higher layer scheduling.